

## CLAIMS

1. A composite power amplifier structure, **characterized by**

5 a first power amplifier (PA 2) configured as an auxiliary amplifier of a Doherty amplifier and connected to an output node; and  
an even number of further power amplifiers configured into at least one Chireix pair (PA 1,1 PA 1,2) connected to said output node.

10 2. The amplifier structure of claim 1, **characterized by** means (40) for driving at least one Chireix pair by drive signals having amplitude dependent phase over at least a part of the dynamic range of the composite amplifier structure.

15 3. The amplifier structure of claim 2, **characterized by** means (40) for driving at least one Chireix pair in outphasing mode over at least a part of the dynamic range of the composite amplifier structure.

20 4. The amplifier structure of claim 3, **characterized by** means (40) for driving at least two Chireix pairs in outphasing mode over different parts of the dynamic range of the composite amplifier structure.

25 5. The amplifier structure of claim 3, **characterized by** means (40) for driving at least one Chireix pair with substantially linear current amplitudes above its corresponding outphased part of the dynamic range of the composite amplifier structure.

25 6. The amplifier structure of claim 3, **characterized by** means (40) for driving at least one Chireix pair with substantially linear current amplitudes below its corresponding outphased part of the dynamic range of the composite amplifier structure.

30 7. The amplifier structure of claim 1, **characterized by** means (40) for driving said first power amplifier (PA 2) with substantially zero current amplitudes

below and substantially linear current amplitudes above a predetermined output node voltage amplitude.

8. The amplifier structure of any of the preceding claims, **characterized** in  
5 that said structure forms a stand-alone composite amplifier.

9. The amplifier structure of any of the preceding claims 1-7, **characterized** in that said structure forms part of a composite amplifier including further power amplifiers.

10. A radio terminal having a composite power amplifier structure, **characterized by**

a first power amplifier (PA 2) configured as an auxiliary amplifier of a Doherty amplifier and connected to an output node; and

15 an even number of further power amplifiers configured into at least one Chireix pair (PA 1,1 PA 1,2) connected to said output node.

11. The radio terminal of claim 10, **characterized by** means (40) for driving at least one Chireix pair by drive signals having amplitude dependent phase over 20 at least a part of the dynamic range of the composite amplifier structure.

12. The radio terminal of claim 11, **characterized by** means (40) for driving at least one Chireix pair in outphasing mode over at least a part of the dynamic range of the composite amplifier structure.

25 13. The radio terminal of claim 12, **characterized by** means (40) for driving at least two Chireix pairs in outphasing mode over different parts of the dynamic range of the composite amplifier structure.

30 14. The radio terminal of claim 12, **characterized by** means (40) for driving at least one Chireix pair with substantially linear current amplitudes above its corresponding outphased part of the dynamic range of the composite amplifier structure.

15. The radio terminal of claim 12, **characterized by** means (40) for driving at least one Chireix pair with substantially linear current amplitudes below its corresponding outphased part of the dynamic range of the composite amplifier structure.
16. The radio terminal of claim 10, **characterized by** means (40) for driving said first power amplifier (PA 2) with substantially zero current amplitudes below and substantially linear current amplitudes above a predetermined output node voltage amplitude.
17. The radio terminal of any of the preceding claims 10-16, **characterized in** that said structure forms a stand-alone composite amplifier.
18. The radio terminal of any of the preceding claims 10-16, **characterized in** that said structure forms part of a composite amplifier including further power amplifiers.
19. The radio terminal of any of claims 10-6, **characterized in** that said radio terminal is a mobile radio terminal.
20. The radio terminal of any of claims 10-16, wherein said radio terminal is a base station.
21. A method of driving a composite amplifier structure including an odd number of power amplifiers connected to a common load, said method being **characterized by** the steps of:
  - driving a first power amplifier with substantially zero current amplitudes below and substantially linear current amplitudes above a predetermined output node voltage; and
  - driving at least one Chireix pair by drive signals having amplitude dependent phase over at least a part of the dynamic range of the composite amplifier.

22. The method of claim 21, **characterized by** the step of driving at least one Chireix pair in outphasing mode over at least a part of the dynamic range of the composite amplifier structure.

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23. The method of claim 22, **characterized by** the step of driving at least two Chireix pairs in outphasing mode over different parts of the dynamic range of the composite amplifier structure.

10 24. The method of claim 22, **characterized by** the step of driving at least one Chireix pair with substantially linear current amplitudes above its corresponding outphased part of the dynamic range of the composite amplifier structure.

15 25. The method of claim 22, **characterized by** the step of driving at least one Chireix pair with substantially linear current amplitudes below its corresponding outphased part of the dynamic range of the composite amplifier structure.